# SMTP TLS Settings

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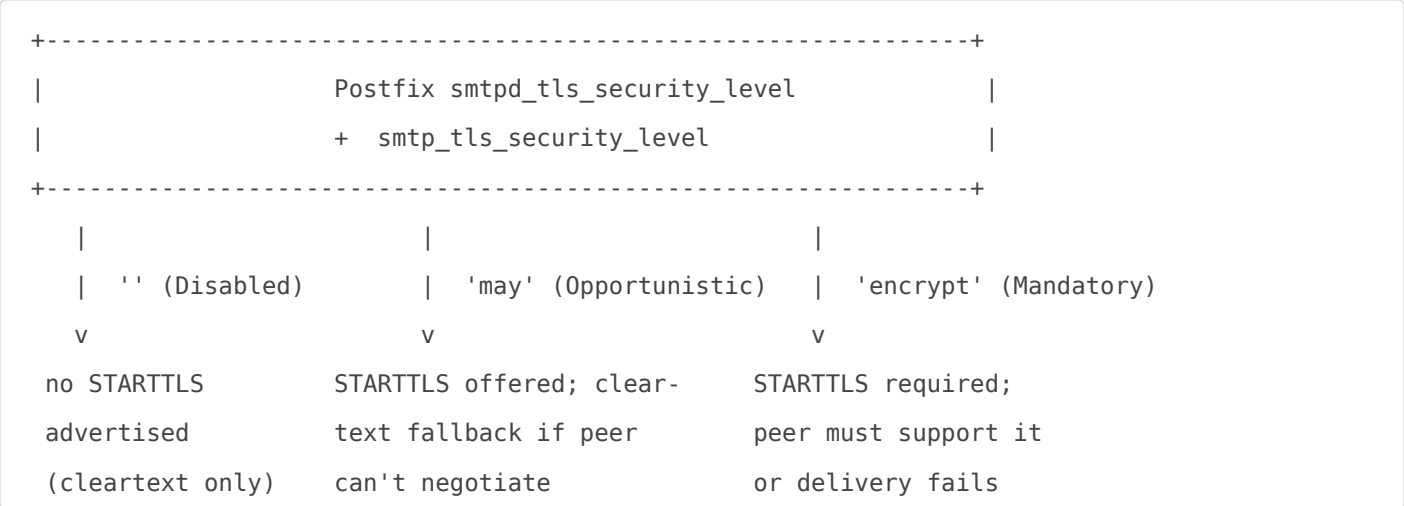
Admin path: **System > SMTP TLS Settings** (`view_smtp_tls_settings.cfm`, `inc/get_smtp_tls_settings.cfm`, `inc/get_smtp_tls_policies.cfm`, `inc/edit_smtp_tls_settings.cfm`, `inc/smtp_tls_save_settings.cfm`, `inc/smtp_tls_add_domain.cfm`, `inc/smtp_tls_edit_domain.cfm`, `inc/smtp_tls_delete_domain.cfm`, `inc/generate_tls_policy.cfm`, `inc/generate_postfix_configuration.cfm`).

This page configures **Postfix TLS** end to end: the global inbound/outbound TLS mode (Disabled / Opportunistic / Mandatory), the certificate Postfix presents on `:25` / `:587`, and per-destination-domain TLS policy overrides for outbound delivery.

Pairs with System Certificates, which owns the certificate **store**; this page is the **binding** of one of those certs to the Postfix `smtpd_tls_*` / `smtp_tls_*` directives. Pairs also with Server Setup, which owns the SMTP banner hostname (`myhostname`) — the cert's Common Name or SAN must match that hostname for strict STARTTLS verifiers to accept the handshake.

# TLS modes




| Mode (`tlsmode` form value) | Postfix value | Use when |
|---|---|---|

| | | |
|---|---|---|
| **Disabled** (`""`) | (directive value cleared) | Cleartext-only environments (test, isolated networks); production Internet exposure not recommended |
| **Opportunistic TLS** (`may`) — **Recommended** | `may` | Standard public-Internet config. STARTTLS is advertised; peers that support it use it, peers that don't fall back to cleartext |
| **Mandatory TLS** (`encrypt`) — **NOT recommended for Internet-facing servers** | `encrypt` | Closed networks where every peer is known to support TLS. On the open Internet this **drops mail** from any sender that can't negotiate STARTTLS, which is a long tail of misconfigured small senders |

The mode applies symmetrically to inbound (`smtpd_*`) and outbound (`smtp_*`). Both directive rows are written on save.

# Selecting a certificate

The **SMTP TLS Certificate** field is a free-text autocomplete that searches `system_certificates` via the `getcertificates.cfm` ajax endpoint (the same endpoint used by Console Settings). Picking a row populates a hidden `certificateno_1` field with the row ID plus four read-only display fields (Subject, Issuer, Serial, Type).

The certificate picker is **hidden when TLS mode is Disabled** (`#tlscertificate` div toggled by `#tlsmode` change handler). Switching back to Opportunistic or Mandatory slides it back into view.

# The system-cert refusal

If an admin tries to save with the system-managed (bootstrap snakeoil) cert selected, the handler refuses with **error 3**:

> “You cannot select the system-self-signed Certificate for SMTP TLS.

This is intentional. A self-signed cert on `:25` would defeat the purpose — strict STARTTLS verifiers on the receiving side reject the handshake, and Hermes would silently lose all outbound mail to those recipients. The refusal forces the admin to import a real cert (commercial CA, internal PKI, or Let's Encrypt) before flipping TLS on.

The error message text is dated — the comparison is against `certificateno_1 = 1` in `edit_smtp_tls_settings.cfm`, which works on Docker fresh installs (where the bootstrap row is `id =`

`1`) but does **not** work on installs where the system cert was assigned a different ID (notably DEV's `ssl-cert-snakeoil` row at `id = 29`). The System Certificates runtime helper resolves this for the deletion guard; the SMTP-TLS save handler still uses the hardcoded `id = 1` check. Practical impact is small because in either case the admin should not be selecting the system row, but if you migrate from a legacy install with a non-`id=1` system row, the SMTP page won't refuse the snakeoil even though the System Certificates page will block its deletion.

# How directive values are stored

This page is the canonical example of the dual-row `parameters` table pattern documented in Server Setup § Configuration storage. Each Postfix directive has two rows:

| Row | `parameter` | `child` | `parent_name` | Role |
|---|---|---|---|---|
| Name row | `smtpd_tls_security_level` | `2` | — | Directive **name** |
| Value row | `may` / `encrypt` / `""` | `1` | `smtpd_tls_security_level` | Directive **value** |

Save handler `edit_smtp_tls_settings.cfm` writes to the value row only:

```
UPDATE parameters
   SET parameter = '<tls_mode>'
 WHERE parent_name = 'smtpd_tls_security_level'
   AND child = '1'
   AND enabled = '1';

-- same for smtp_tls_security_level (outbound)
-- and smtpd_tls_cert_file, smtpd_tls_key_file, smtpd_tls_CAfile
--   (paths resolved from system_certificates.file_name + type)
```

The selected cert's on-disk paths are derived from `system_certificates.type` + `file_name`:

| `type` | `smtpd_tls_cert_file` | `smtpd_tls_key_file` | `smtpd_tls_CAfile` |
|---|---|---|---|
| `Imported` | `/opt/hermes/ssl/<file_name>_hermes.pem` | `/opt/hermes/ssl/<file_name>_hermes.key` | `/opt/hermes/ssl/<file_name>_hermes.chain.pem` |
| `Acme` | `/etc/letsencrypt/live/<file_name>/cert.pem` | `/etc/letsencrypt/live/<file_name>/privkey.pem` | `/etc/letsencrypt/live/<file_name>/chain.pem` |

The same path-derivation logic is implemented globally in `inc/get_active_cert_paths.cfm` for the console binding; the SMTP save handler open-codes it here (technical debt — the path arithmetic should be moved to the helper so there's only one place that knows the layout).

The new directive values land in the `parameters` table, then `generate_postfix_configuration.cfm` regenerates `main.cf` from the live rows and runs `postfix reload`. Mode changes therefore take effect on the next SMTP connection without dropping in-flight sessions (`postfix reload` is a SIGHUP, not a restart).

# What this page does NOT configure

Hermes' TLS surface is opinionated by design. The page deliberately omits several knobs that Postfix exposes:

| Concern | Status |
|---|---|
| Cipher suite (`smtpd_tls_ciphers`, `smtpd_tls_mandatory_ciphers`) | Hardcoded in `main.cf` baseline; no UI |
| Protocol versions (`smtpd_tls_protocols`, `smtpd_tls_mandatory_protocols`) | Hardcoded in `main.cf` baseline; no UI |
| DH parameters (`smtpd_tls_dh1024_param_file`) | Same ECDHE-only decision as Console Settings — DH is not offered |
| TLS session cache | Hardcoded defaults |
| EECDH curve | Hardcoded defaults |
| Per-mailbox-domain certs (autoconfig/autodiscover) | Lives on SAN Management; this page binds the **single** cert Postfix presents on the public SMTP banner |
| Dovecot IMAP/POP cert | Email Server > Settings (separate `mail.certificate` binding) |
| Console (nginx) cert | Console Settings |

The cipher / protocol decisions are baked into the Postfix baseline config because they have global security implications and changing them needs more than a dropdown — there's no curated "modern / intermediate / legacy" preset UI yet, and the right defaults for an SEG track Mozilla's modern profile which doesn't churn often enough to warrant operator-tunable UI.

# TLS Policy Domains — per-destination outbound overrides

Below the global card is the **TLS Policy Domains** table. Each row forces a stricter-than-global TLS policy for outbound mail to a specific recipient domain.

| Field | Meaning |
|---|---|
| **Domain** | Recipient domain (`example.com`) or domain-and-subdomains pattern (`.example.com` — leading dot matches all subdomains) |
| **Encryption Mode** | Currently always **Mandatory** (`encrypt`) for manually-added rows. Per-row mode tunables are tracked but not exposed. |
| **Note** | Free-text description shown in the row |

Adding a row generates `/etc/postfix/tls_policy` (via `generate_tls_policy.cfm`), runs `postmap` to compile it into a hash map, and reloads Postfix:

```
docker exec hermes_postfix_dkim /usr/sbin/postmap /etc/postfix/tls_policy
```

The Postfix daemon then consults the map for every outbound SMTP connection — entries matching the destination domain override `smtp_tls_security_level` for that specific destination.

> **Operational consequence.** Adding a `encrypt` policy for a recipient domain whose MX **doesn't actually support STARTTLS** silently breaks outbound mail to that domain. Postfix will defer + bounce. Verify the recipient MX advertises STARTTLS before adding a Mandatory entry. The warning callout on the page itself spells this out.

# Auto-added rows (managed by Domains)

When a domain on Email Server > Domains or Email Relay > Domains is configured to require SASL authentication, Hermes auto-inserts a TLS policy row to enforce encryption for that destination. These rows are marked by `description = 'Auto-added: domain requires authentication'` and rendered with a special **Managed by Domains** badge:

- The row's **checkbox** is suppressed (cannot be bulk-deleted from here)
- The row's **Edit** button is suppressed (must be edited on the managing page)
- The Note column links to **view_domains.cfm** so the admin lands on the right page

This is the same pattern used elsewhere in Hermes for system-owned rows that would otherwise look user-editable — surface that the row is managed somewhere else and link to the managing page.

# Save flows

## Save SMTP TLS Settings (`save_settings`)

```
1. Validate form.tlsmode in ("", "may", "encrypt")
2. UPDATE parameters value rows for smtpd_tls_security_level + smtp_tls_security_level
3. If tlsmode is not "" :
     a. Validate certificateno_1 exists in system_certificates
     b. Refuse if certificateno_1 = 1 (legacy bootstrap-id check)
     c. UPDATE parameters2 smtp.certificate
     d. Derive cert/key/CA paths from type + file_name
     e. UPDATE parameters value rows for smtpd_tls_cert_file / smtpd_tls_key_file /
smtpd_tls_CAfile
4. generate_postfix_configuration.cfm  (regenerate main.cf + postfix reload)
5. session.m = 35 ("settings saved successfully. Postfix reloaded.")
6. cflocation back to view_smtp_tls_settings.cfm
```

## Add / Edit / Delete TLS Policy Domain (`add_domain` / `edit_domain` / `delete_domain`)

```
1. Validate domain (email-trick: IsValid("email", "bob@<domain>"))
   - Leading "." accepted; validator prepends "subdomain"
2. INSERT / UPDATE / DELETE in tls_policies
3. generate_tls_policy.cfm   (rewrite /etc/postfix/tls_policy + postmap)
4. generate_postfix_configuration.cfm  (postfix reload)
5. session.m = 37 / 39 / 34 (per action)
6. cflocation back to view_smtp_tls_settings.cfm
```

Both save flows end in a `postfix reload`, which is a SIGHUP — no in-flight SMTP connections are dropped, and queued mail continues delivering normally.

# Failure semantics

| What breaks | What happens |
|---|---|
| Mode = Opportunistic/Mandatory + Certificate empty | `m = 1`, "SMTP TLS Certificate cannot be blank when TLS Mode is set to Opportunistic or Mandatory" |
| Certificate ID does not exist in `system_certificates` | `m = 2`, "The SMTP TLS Certificate you entered is not valid" |
| Certificate ID is `1` (legacy bootstrap check) | `m = 3`, "You cannot select the system-self-signed Certificate for SMTP TLS" |
| Domain validation fails on add/edit | `m = 4` |
| Duplicate domain on add | `m = 5` |
| Duplicate domain on edit | `m = 6` |
| Missing required form field | `m = 20` |
| `generate_tls_policy.cfm` fails (cp / mv / postmap) | DB is ahead of the live `tls_policy.db`. Next save re-renders cleanly. The previous live map is preserved as `/etc/postfix/tls_policy.HERMES.BACKUP`. |
| `postfix reload` fails inside the container | DB and on-disk config in sync; running daemon stale. Recovery: `docker exec hermes_postfix_dkim postfix reload` manually. |

# Files and containers touched

| Path | Owner | Role |
|---|---|---|
| `config/hermes/var/www/html/admin/2/view_smtp_tls_settings.cfm` | `hermes_commandbox` | Page |
| `config/hermes/var/www/html/admin/2/inc/edit_smtp_tls_settings.cfm` | `hermes_commandbox` | Save handler (mode + cert binding) |
| `config/hermes/var/www/html/admin/2/inc/smtp_tls_save_settings.cfm` | `hermes_commandbox` | Action handler wrapper around `edit_smtp_tls_settings.cfm` |
| `config/hermes/var/www/html/admin/2/inc/smtp_tls_add_domain.cfm` | `hermes_commandbox` | TLS Policy add |
| `config/hermes/var/www/html/admin/2/inc/smtp_tls_edit_domain.cfm` | `hermes_commandbox` | TLS Policy edit |
| `config/hermes/var/www/html/admin/2/inc/smtp_tls_delete_domain.cfm` | `hermes_commandbox` | TLS Policy delete |
| `config/hermes/var/www/html/admin/2/inc/generate_tls_policy.cfm` | `hermes_commandbox` | Render `/etc/postfix/tls_policy` + `postmap` |
| `config/hermes/var/www/html/admin/2/inc/generate_postfix_configuration.cfm` | `hermes_commandbox` | `main.cf` regen + `postfix reload` |
| `/etc/postfix/main.cf` | `hermes_postfix_dkim` (mounted) | Live Postfix config — regen target |
| `/etc/postfix/tls_policy` + `tls_policy.db` | `hermes_postfix_dkim` (mounted) | Live TLS-policy map (text + postmap-compiled) |

| Path | Owner | Role |
|---|---|---|
| `/etc/postfix/tls_policy.HERMES.BACKUP` | `hermes_postfix_dkim` (mounted) | Write-time backup of the previous live map |
| `parameters` rows for `smtpd_tls_*` and `smtp_tls_*` | `hermes_db_server` (`hermes` DB) | Directive values |
| `parameters2.smtp.certificate` | `hermes_db_server` (`hermes` DB) | Active SMTP cert binding (FK into `system_certificates.id`) |
| `tls_policies` table | `hermes_db_server` (`hermes` DB) | Per-destination overrides |

Every shell-out uses `docker exec hermes_postfix_dkim ...` per the standard Hermes Docker pattern. `postmap` is the one operation that absolutely **must** run inside the container — the `tls_policy.db` hash format is libdb-version-sensitive, and running it on the host produces a file Postfix inside the container can't read.

# Related

- System Certificates — the certificate store this page selects from; system-managed certs cannot be bound for SMTP
- Server Setup — Mail Server Hostname (`myhostname`); the SMTP cert's Subject CN or SAN should match this for strict STARTTLS verifiers
- Console Settings — the console-side analogue of this page (binds a System Certificate to nginx)
- Authentication Settings — Authelia / SASL; per-domain SASL requirements auto-insert `tls_policies` rows here
- LDAP RemoteAuth — upstream LDAP TLS settings; separate CA store at `/opt/hermes/certs/remoteauth/`, not part of System Certificates
- SAN Management — per-mailbox-domain certs for autodiscover/autoconfig; orthogonal to the single SMTP cert this page binds
- Intrusion Prevention — Fail2ban; not TLS-related but relevant for hardening the SMTP service this page configures
- Admin Console Firewall — IP allowlist for the console (not SMTP); SMTP is open to the Internet for inbound mail

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